

IN THE CLAIMS:

1 1-8 (CANCELLED)

1 9. (CURRENTLY AMENDED) An apparatus for improving utilization of a data link
2 coupled to a network comprising:

3 | a packet buffer containing one or more queues configured to hold data, the one or
4 more queues associated with an excess rate component;

5 a queue manager coupled to the queues and configured to dequeue the data from
6 the queues and transfer the data onto the data link;

7 auxiliary queue logic coupled to the queue manager and configured to generate
8 scores for one or more of the queues, the scores to represent ratings of eligibility to trans-
9 fer data in accordance with the excess rate component, the auxiliary queue logic further
10 configured to maintain a scorecard of the generated scores and notify the queue manager
11 of a queue associated with the highest score in the scorecard to cause the queue manager
12 to dequeue data from the queue when the link becomes idle.

1 10. (PREVIOUSLY PRESENTED) The apparatus as defined in claim 9 comprising:

2 calendar queue logic coupled to the auxiliary queue logic and configured
3 to notify the auxiliary queue logic when the data link becomes idle.

1 11. (PREVIOUSLY PRESENTED) The apparatus as defined in claim 9 comprising:

2 a scheduler coupled to the auxiliary queue logic and configured to maintain at-
3 tribute information associated with the queues.

1 12. (PREVIOUSLY PRESENTED) The apparatus as defined in claim 11 wherein the

2 auxiliary queue logic is configured to acquire the attribute information associated with

3 the queues from the scheduler and use the attribute information to generate scores for the
4 queues.

1 13. (PREVIOUSLY PRESENTED) The apparatus as defined in claim 12 wherein the at-
2 tribute information includes rate information associated with the queues.

1 14. (PREVIOUSLY PRESENTED) The apparatus as defined in claim 13 wherein the rate
2 information includes the excess rate component.

1 15. (PREVIOUSLY PRESENTED) The apparatus as defined in claim 11 wherein the
2 scorecard is a data structure comprising one or more entries, and wherein each entry con-
3 tains a score field configured to hold a generated score and a queue identifier (QID) field
4 configured to hold a QID associated with a queue.

1 16. (PREVIOUSLY PRESENTED) The apparatus as defined in claim 15 wherein the
2 auxiliary queue logic is configured to acquire attribute information and a QID associated
3 with a queue, generate a score associated with the queue using the attribute information,
4 and place the score and QID in the score and QID fields, respectively, of an entry con-
5 tained in the scorecard.

1 17-20. (CANCELLED)

1 21. (CURRENTLY AMENDED) A method for improving utilization of a data link cou-
2 pled to a network comprising:

3 | holding data in one or more queues contained in a packet buffer coupled to a
4 queue manager, the one or more queues associated with an excess rate component;
5 generating scores for the one or more of the queues, the scores to represent ratings
6 of eligibility to transfer data in accordance with the excess rate component;
7 maintaining a scorecard of the generated scores;

8 determining that a data link is idle; and
9 dequeuing, by the queue manager, data from a queue associated with a highest
10 score in the scorecard, and transferring the data onto the data link, in response to deter-
11 mining that the data link has become idle.

1 22. (PREVIOUSLY PRESENTED) The method as defined in claim 21 further compris-
2 ing:

3 acquiring attribute information associated with the one or more queues; and
4 using the attribute information to generate the scores for the one or more queues.

1 23. (PREVIOUSLY PRESENTED) The method as defined in claim 22 wherein the at-
2 tribute information includes rate information associated with the queues.

1 24. (PREVIOUSLY PRESENTED) The method as defined in claim 23 wherein the rate
2 information includes the excess rate component.

1 25. (PREVIOUSLY PRESENTED) The method as defined in claim 21 as defined in
2 claim 11 wherein the scorecard is a data structure comprising one or more entries, and
3 wherein each entry contains a score field configured to hold a generated score and a
4 queue identifier (QID) field configured to hold a QID associated with a queue.

1 26. (PREVIOUSLY PRESENTED) The method as defined in claim 25 further compris-
2 ing:

3 acquiring attribute information and a QID associated with a queue;
4 generating a score associated with the queue using the attribute information; and
5 placing the score and QID in the score and QID fields, respectively, of an entry
6 contained in the scorecard.

1 27. (PREVIOUSLY PRESENTED) The method as defined in claim 21 further compris-
2 ing:
3 determining the scorecard is full;
4 in response to the scorecard being full, determining if a generated score is greater
5 than a score contained in the scorecard; and
6 if so, replacing a lowest score in the scorecard with the generated score.

1 28. (PREVIOUSLY PRESENTED) The method as defined in claim 21 further compris-
2 ing:
3 determining the scorecard is not full; and
4 in response to the scorecard being not full, adding a generated score to the score-
5 card.

1 29. (CURRENTLY AMENDED) An apparatus for improving utilization of a data link
2 coupled to a network comprising:
3 | a packet buffer containing one or more queues configured to hold data, the one or
4 more queues associated with an excess rate component;
5 means for generating scores for the one or more of the queues, the scores to repre-
6 sent ratings of eligibility to transfer data in accordance with the excess rate component;
7 means for maintaining a scorecard of the generated scores;
8 means for determining that a data link is idle; and
9 means for dequeuing data from a queue associated with a highest score in the
10 scorecard, and transferring the data onto the data link, in response to determining that the
11 data link has become idle.

1 30. (PREVIOUSLY PRESENTED) The apparatus as defined in claim 29 further com-
2 prising:
3 means for acquiring attribute information associated with the one or more queues;
4 and

5 means for using the attribute information to generate the scores for the one or
6 more queues.

1 31. (PREVIOUSLY PRESENTED) The apparatus as defined in claim 30 wherein the at-
2 tribute information includes the excess rate component.

1 32. (PREVIOUSLY PRESENTED) The apparatus as defined in claim 29 further com-
2 prising:

3 means for determining if a generated score is greater than a score contained in the
4 scorecard; and

5 means for replacing a lowest score in the scorecard with the generated score if the
6 generated score is greater than a score contained in the scorecard.